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TITLE: System and methods for
automated color correction

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INVENTOR-INFORMATION:

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ABSTRACT:

A system and methods for automated color correction. A computer-based workstation is coupled to an image source such as a telecine or other graphic image generating device, an image processing system such as a color corrector, and a utilization device such as a tape recorder or digital storage device. A target image from the image source is displayed on a display monitor associated with the workstation. An image and data storage device stores images and prestored reference image information for a plurality of selectable reference images. A capture device captures a source image

from the image source. An image analyzer software process computes statistical parameters of the source image and compares these statistical parameters to prestored statistical parameters of a selected one of the reference images. The statistical parameters include a color distribution or frequency histogram for various color parameters, e.g. gain, gamma, and black level for video signals. A control unit provides correction value outputs to the image source or to the image processing system, to control the color parameters. The correction value outputs are utilized to control image parameters of the source image in an iterative manner until there is a match between prestored statistical parameters of the reference image and the determined statistical parameters of the target image.

54 Claims, 26 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 12

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Brief Summary Text - BSTX (13):

The GAMMA parameter, which originated in photography, relates to non-linear characteristics in the mid-range portion between the lowest signal levels and highest signal levels, and allows introduction of an approximation of the non-linear response characteristics of the human

eye to light intensity levels.
GAMMA correction intuitively has the effect of compressing or spreading out signal intensities in the middle range of intensity values perceptible by the human eye viewing a video screen. The GAMMA level of a video image is often associated with the most predominant signal level of a given picture, which can be measured by determining the signal level associated with the greatest number of pixels in the picture. frequency distribution. This is often referred to as the "peak" value, since a frequency distribution (histogram) of signal level vs. number of pixels will have a peak at this particular signal level.